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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,762	02/09/2004	Trung T. Doan	MCRO:144-3 92-0321-04	6167

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EXAMINER


NOVACEK, CHRISTY L

ART UNIT PAPER NUMBER

2822

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/774,762	Applicant(s) DOAN ET AL. 	
	Examiner Christy L. Novacek	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004 and 10 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the preliminary amendments filed February 9, 2004 and June 10, 2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Woo et al. (US 5,262,352).

Regarding claims 19 and 27, Woo discloses a first layer (14/15) superjacent a semiconductor substrate (10), a barrier film (16) having a structural integrity superjacent the substrate, a second layer (17/18/20) superjacent the barrier film and isolated from the first layer by the barrier film (col. 3, ln. 22 – col. 4, ln. 15). Woo does not specifically disclose that the second layer is isolated from the first layer when a temperature of 700°C or greater is applied. However, because the first layer, barrier layer, and second layer are made of the same materials as those of Applicant's invention, it appears that the layered structure of Woo would inherently possess the function of the second layer is isolated from the first layer when a temperature of 700°C or greater is applied. See *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971) "where the Patent Office has reason to believe that a functional limitation asserted

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to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on"); and *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980) (a case indicating that the burden of proof can be shifted to the applicant to show that the subject matter of the prior art does not possess the characteristic relied on whether the rejection is based on inherency under 35 U.S.C. 102 or obviousness under 35 U.S.C. 103). Additionally, it is noted that claims 19-38 are product claims. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 20, Woo discloses that the barrier film can include silicon dioxide, silicon nitride or TEOS (col. 3, ln. 59 – col. 4, ln. 3).

Regarding claim 21, Woo discloses that the first layer can include tungsten, titanium and polycrystalline silicon (col. 3, ln. 48-58).

Regarding claim 22, Woo discloses that the second layer can include tungsten, titanium, polycrystalline silicon and TEOS (col. 4, ln. 4-11).

Regarding claims 23 and 24, Woo discloses that the second layer can include a refractive metal (tungsten or titanium) (col. 4, ln. 4-11).

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Regarding claim 25, Woo discloses that the second layer can include TEOS (col. 4, ln. 11-15).

Regarding claims 26, 28 and 37, Woo discloses a first layer (14/15), inherently having a thermal coefficient of expansion, a nitride film (16) superjacent the first layer, and another layer (17/18/20), inherently having another thermal coefficient of expansion, superjacent the nitride film (col. 3, ln. 22 – col. 4, ln. 15). Woo does not specifically disclose that the first and second layers are flowable at temperatures of at least 700°C. However, because the first and second layers are made of the same materials as those of Applicant's invention, it appears that these layers of Woo would inherently possess the function of being flowable. See *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971) “where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on”);

Regarding claim 29, Woo discloses that the nitride film can include silicon nitride (col. 3, ln. 59 – col. 4, ln. 3).

Regarding claims 30-32, Woo discloses that the first layer can include tungsten, titanium and polycrystalline silicon (col. 3, ln. 48-58).

Regarding claim 33, Woo discloses a semiconductor substrate (10), a planarization layer (14/15), inherently having a thermal coefficient of expansion, superjacent the substrate, a barrier film (16) having structural integrity superjacent the planarization layer, and another layer (17/18/20), inherently having a thermal coefficient of expansion, superjacent the barrier film

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(col. 3, ln. 22 – col. 4, ln. 15). Woo does not specifically disclose that the barrier film prevents the planarization layer and the “another layer” from interacting when heated. However, because the first layer, barrier layer, and second layer are made of the same materials as those of Applicant’s invention, it appears that the layered structure of Woo would inherently possess the function of preventing the planarization layer and the “another layer” from interacting when heated. See *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971) “where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on”).

Regarding claim 34, Woo discloses that the barrier film can include silicon nitride, silicon dioxide and TEOS (col. 3, ln. 59 – col. 4, ln. 3).

Regarding claim 35, Woo discloses that the planarization layer can include tungsten, titanium and polycrystalline silicon (col. 3, ln. 48-58).

Regarding claim 36, Woo discloses that the “another layer” can include tungsten, titanium, polycrystalline silicon and TEOS (col. 4, ln. 4-11).

Regarding claim 38, Woo does not specifically disclose that the barrier film possesses the property of maintaining its structural integrity when heated to a temperature of at least 700°C. However, because the barrier layer is made of the same materials as that of Applicant’s invention, it appears that the barrier film of Woo would inherently possess the function of maintaining its structural integrity when heated to a temperature of at least 700°C. See *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971) “where the Patent Office

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has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on”).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christy L. Novacek whose telephone number is (571) 272-1839. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLN

August 19, 2005


AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
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